

## CLAIMS

1. Surgical instrument (1) for geometrical evaluation of an object (81) inside a body of a human being or animal, the instrument (1) comprising a handle (2), a reference device (5) and means for bringing said reference device (5) into the vicinity of said object (81), said instrument (1) co-operating with an image acquisition device for acquiring at least one image of said reference device when it is in the vicinity of said object (81).  
5
2. Surgical instrument (1) according to Claim 1, characterized in that said object (81) is a lesion of an internal tissue, typically a cartilage tissue of an articulation (8).  
10
3. Surgical instrument (1) according to Claim 1 or 2, characterized in that said reference device (5) is a screen or the like.  
15
4. Surgical instrument (1) according to any one of the preceding claims, characterized in that said reference device (5) has a colour substantially contrasting with the object (81) to be evaluated geometrically.  
15
5. Surgical instrument (1) according to Claim 4, characterized in that the reference device (5) has a dark grey or black colour.  
20
6. Surgical instrument (1) according to any one of the preceding claims, characterized in that it comprises a guide barrel (3) and a shank (4) sliding inside said barrel (3), the barrel (3) being able to be inserted inside the body and having a proximal end in the vicinity of the handle (2) and an opposite distal end which is open.  
25
7. Surgical instrument (1) according to Claim 6, characterized in that the shank (4) has a head-piece (46) with support arms (43) for supporting said reference device (5).  
30
8. Surgical instrument (1) according to Claim 7, characterized in that the support arms (43) are pivotably mounted and are elastically movable between a first position where the reference device (5) is

- retracted and a second position where the reference device (5) is unfolded in the vicinity of the object (81) to be evaluated.
9. Surgical instrument (1) according to any one of Claims 6-8,  
characterized in that the shank (4) is moved from the position where  
the reference device (5) is retracted inside the barrel (3) into the  
position where the reference device (5) is unfolded in the vicinity of  
the object (81) to be evaluated by means of a trigger (81) situated  
at the proximal end.
10. Surgical instrument (1) according to any one of the preceding  
claims, characterized in that it also comprises a recall system (51,  
23, 21) for recalling the reference device (5) from an unfolded  
position into a retracted position.
11. Surgical instrument (1) according to Claim 10, characterized in that  
the recall system (51, 23, 21) comprises a wire (51) connected to  
the reference device (5) and to the handle (2), said wire being  
slidable inside an axial cavity of the shank (4).
12. Surgical instrument (1) according to any one of the preceding  
claims, characterized in that the handle is preferably of the  
"scissors type".
13. Surgical instrument (1) according to any one of the preceding  
claims, characterized in that it is at least partially made with  
polymer material and is of the disposable type.
14. Method for performing the geometrical evaluation of an object (81)  
inside a body, the method comprising the steps of associating a  
reference device (5) with the object (81) to be evaluated, acquiring  
at least one image of the object (81) associated with the reference  
device (5) and processing said at least one image in order to  
acquire said evaluation.
15. Method according to Claim 14, characterized in that said object (81)  
is a lesion of an internal tissue, typically a cartilage tissue of an

- 15 -

- articulation (8) or the like.
16. Method according to Claim 14 or 15, characterized in that said step of associating a reference device (5) with the object (81) to be evaluated comprises the step of associating a screen (5) with the object.
- 5            17. Method according to Claim 14, 15 or 16, characterized in that the step of associating a reference device (5) with the object (81) comprises introducing said reference device (5) inside an arthroscopy guide (7) in the folded-up condition, unfolding the reference device (5) in the vicinity of the object (81) and extracting it, again in the folded-up condition, through said guide (7).
- 10            18. Method according to any one of Claims 14-17, characterized in that the step of acquiring at least one image of the object (81) associated with the reference device (5) comprises illuminating the surgical site, acquiring at least one image of the object when associated with the reference device (5) and displaying said at least one image on an arthroscopic monitor (10).
- 15            19. Method according to any one of Claims 14-18, characterized in that the step of processing the images comprises using morphometric processing techniques.
- 20            20. Method according to any one of Claims 14-19, characterized in that it may be performed entirely by a machine.
- 25            21. Method according to any one of Claims 14-20, characterized in that it comprises the further step of shaping a cartilage tissue (12), prepared in a laboratory from primary or stem cells, on the basis of the form and estimated extent of the cartilage lesion (81).
22. Method according to Claim 21, characterized in that said step of shaping the cartilage tissue is performed using laser cutting instruments (11).